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Cover: Andros Island iguana, *Cyclura cychlura cychlura*. Photograph by Desiree Wong.

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Notes on the Herpetofauna of Western Mexico 10: Herpetofauna of the Protected Natural Area “Estero El Salado” and Adjacent Areas in Puerto Vallarta, Jalisco, Mexico

Daniel Cruz-Sáenz¹, Ángeles Penilla-Juarez² and David Lazcano³

Abstract

With the objective to update the amphibian and reptile species richness of the protected natural area “Estero El Salado,” surveys were conducted in different vegetation types to appraise the diversity of these sites. The biological richness represented in this natural protected area is important because the area is dedicated to protecting the mangroves and other vegetation that has high species richness.

Resumen

Con el objetivo de actualizar y dar a conocer la riqueza de anfibios y reptiles del área natural protegida en el “Estero El Salado” fueron realizados muestreando en los diferentes tipos de vegetación con la intención de representar todas las condiciones de esta área. Esta área natural protegida está dedicada a proteger al manglar, y la vegetación adyacente, juntos tienen una alta riqueza de especies.

Introduction

“Estero El Salado” is an urban island of only 200 ha, surrounded by the city of Puerto Vallarta; avenues and streets demarcate the area (Figure 1). This circumstance is important because the gene pool is limited for any amphibian or reptile species found there.

Other problems are the feral fauna species coming from the surrounding neighborhoods; cats and dogs move into the protected natural area and have a high impact due to hunting the local fauna (Dickman, 1996). The greatest threat is an overpopulation of raccoons (*Procyon lotor*), and it has been documented that when the raccoon population increases herpetofaunal populations like iguanas decrease due to this invasive predator (Meshaka, 2009).

Materials and methods

Study site

The protected natural area “Estero El Salado” is in the municipality of Puerto Vallarta, Jalisco, Mexico. This area is surrounded by the city of Puerto Vallarta. It's like an island of 200 ha.

In this protected area 99 species of bird, 24 of amphibians and reptiles and 17 of mammals have been reported.

Vegetation types

Semideciduous forest: fig tree (*Ficus padifolia*), torote (*Bursera arborea*), cohune palm (*Attalea cohune*), shortleaf fig tree (*Ficus citrifolia*), southern cattail (*Typha domingensis*),

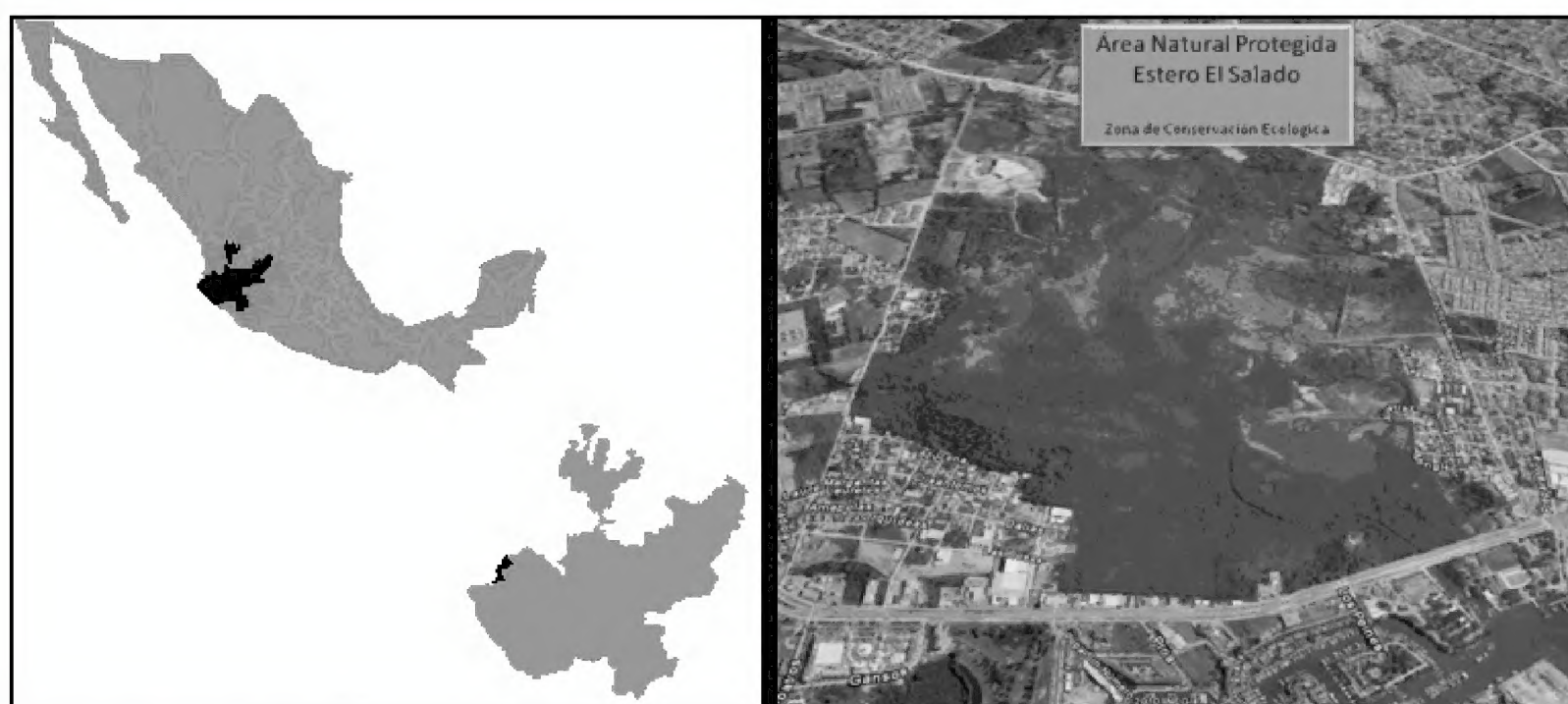


Figure 1. Location of “Estero El Salado.”

1. Centro de Estudios en Zoología, CUCBA, Universidad de Guadalajara, Apartado Postal 1-1919, Guadalajara, Jalisco, 44101, México. dcruzsaenz@gmail.com

2. Centro Universitario de Ciencias Biológicas y Agropecuarias. Universidad de Guadalajara. kizufa@gmail.com

3. Universidad Autónoma de Nuevo León, Facultad de Ciencias Biológicas, Laboratorio de Herpetología, Apartado Postal - 513, San Nicolás de los Garza, Nuevo León, C. P. 66450, México. imantodes52@hotmail.com

Table 1. Amphibian and reptile species from “Estero El Salado”. Vegetation types: SDF = semideciduous forest; MF = mangrove forest; HG = halophytic grassland; TF = thorn forest. Protection categories based on Norma Oficial Mexicana (NOM-SEMARNAT-059-2010): A = Amenazada (Threatened), Pr = Protección Especial (Special concern). Endemism status: EM = Endemic to Mexico.

Species	Vegetation type				Protection NOM-2010	Endemism
	SDF	MF	HG	TF		
Cane Toad, <i>Rhinella marina</i>	X	X	X		-	
Blunt-toed Chirping Frog, <i>Syrnhophus modestus</i>	X			X	Pr	EM
Mexican Treefrog, <i>Smilisca baudinii</i>	X				-	
Dwarf Mexican Treefrog, <i>Tlalocohyla smithii</i>				X	-	EM
Forrer’s Leopard Frog, <i>Lithobates forreri</i>	X			X	Pr	
Common House Gecko, <i>Hemidactylus frenatus</i>	X			X	-	
Lane’s Leaf-toed Gecko, <i>Phyllodactylus lanei</i>	X				-	EM
Brown Basilisk, <i>Basiliscus vittatus</i>	X				-	
Western Spiny-tailed Iguana, <i>Ctenosaura pectinata</i>	X	X	X	X	A	EM
Green Iguana, <i>Iguana iguana</i>	X	X	X	X	Pr	
Black-nosed Lizard, <i>Sceloporus melanorhinus</i>			X	X	-	
Large-scaled Spiny Lizard, <i>Sceloporus utiformis</i>				X	-	EM
Tropical Tree Lizard, <i>Urosaurus bicarinatus</i>			X		-	EM
Schmidt’s Anole, <i>Norops schmidtii</i>	X	X		X	-	EM
Many-lined Whiptail Lizard, <i>Aspiloscelis lineatissima</i>	X			X	Pr	
Boa Constrictor, <i>Boa constrictor</i>		X		X	A	
Neotropical Whipsnake, <i>Coluber mentovarius</i>				X	A	EM
Central American Indigo Snake, <i>Drymarchon melanurus</i>				X	-	
Speckled Snake, <i>Drymobius margaritiferus</i>				X	-	
Southwestern Cat-eyed Snake, <i>Leptodeira maculata</i>				X	Pr	
Pacific Coast Parrot Snake, <i>Leptophis diplotropis</i>				X	A	EM
Mexican West Coast Gartersnake, <i>Thamnophis valida</i>				X	-	
Brown Vinesnake, <i>Oxybelis aeneus</i>				X	-	
Western Thread Snake, <i>Rena humilis</i>	X				-	
Pond Slider, <i>Trachemys scripta</i>		X			Pr	
American Crocodile, <i>Crocodylus acutus</i>		X			Pr	

umbrella sedges (*Cyperus* spp.), water primrose (*Ludwigia peploides*), primrose-willow (*Ludwigia* sp.), pencil willow (*Salix humboldtiana*), and giant cane (*Arundo donax*). Other common species in the area are *mata raton* (*Cayaponia attenuata*) and seasonvine (*Cissus verticillata*). This vegetation type covers just 2 km².

Thorn forest: Thorn forest components form a kind of barrier between the mangroves. Among the most common species we have recorded: *guamuchilillo* (*Pithecellobium dulce*), white thorn (*Pithecellobium lanceolatum*) *mezquite salado* (*Prosopis juliflora*), *iguanero* (*Celtis iguanaea*), *jarretadera* (*Acacia hindsii*) and *guásima* (*Guazuma ulmifolia*). In open sites in this community are trees such as white mangrove (*Laguncularia racemosa*) *mezquite salado* (*Prosopis juliflora*) and false-teeth (*Capparis flexuosa*).

Mangrove: Mangrove vegetation is the most abundant and widely distributed vegetation type – 135 km². Some species in this type of vegetation include red mangrove (*Rhizophora mangle*), white mangrove (*Laguncularia racemosa*) and black man-



Dwarf Mexican treefrog, *Tlalocohyla smithii*. Photograph by Daniel Cruz-Sáenz.

Table 2. Species richness by vegetation type

Vegetation type	Amphibians	Reptiles
Semideciduous forest	4	8
Mangrove forest	1	6
Halophytic grassland	1	4
Thorn forest	1	15

grove (*Avicennia germinans*). These species are protected by Mexican environmental law (SEMARNAT, 2010).

Halophytic grassland: This is a plant community that forms large patches consisting primarily of grasses dominated by marine couch (*Sporobolus splendens*) as well as saltwort (*Batis marítima*), sea purslane (*Sesuvium portulacastrum*), alkali love-grass (*Eragrostis obtusiflora*), among others. This vegetation type covers an area of 32 km².

Sampling

Surveys were conducted in the different vegetation types with the aim of determining the richness of amphibian and reptile species.

The surveys were performed using 500-m band transects and intensive searching for individuals in all the possible micro-habitats for the species: ground, trees, fallen logs, bark, etc.; some surveys were conducted at night searching for amphibians.

Results

After two years of monitoring the herpetofauna of “Estero El Salado” we registered 26 herpetofaunal species of which five are

amphibians and 21 are reptiles. Amphibians are represented by one order, four families and five genera. Two species are protected by Mexican environmental law (SEMARNAT, 2010) and two are endemic to Mexico (Table 1). Reptiles are represented by three orders, 11 families and 20 genera. Nine species are protected by Mexican environmental law (SEMARNAT, 2010) and seven are endemic to Mexico (Table 1).

The vegetation type with the highest richness of amphibian species was semideciduous forest. In the remaining areas only one species was found. For reptiles the greatest richness was found in the thorn vegetation followed by semideciduous forest (Table 2).

Discussion

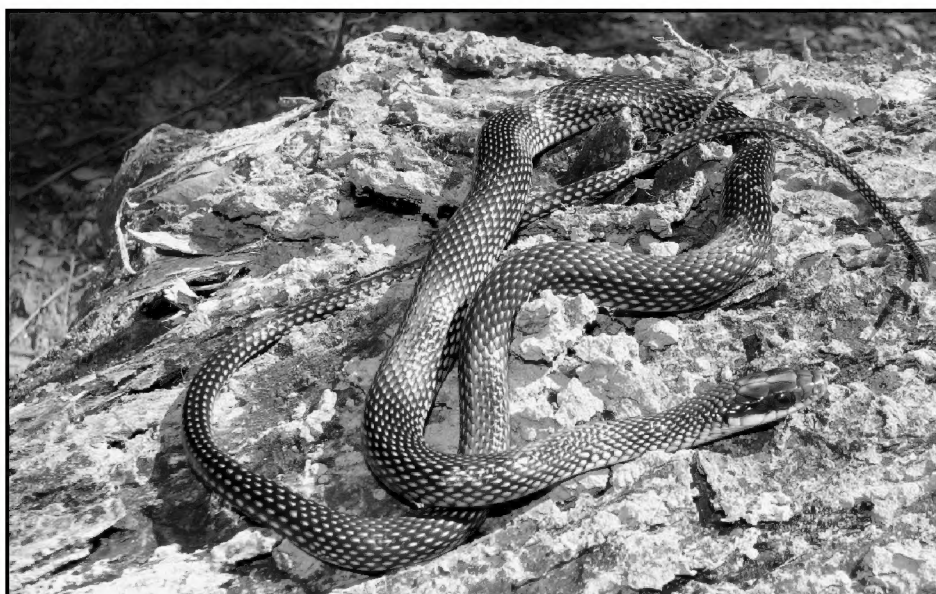
This natural area is dedicated to protecting the mangroves and their wildlife inhabitants. This is because the majority of the surface is covered by mangrove. However we observed that the other types of vegetation covering a smaller area have higher species richness, particularly thorn vegetation and semideciduous forest (Table 2). Together with mangrove and adjacent vegetation types they have a rich biota, but the mangrove alone represents just a few species. The lower richness of the mangrove forest could be due to salinity and the poor food resources.

Acknowledgments

We wish to thank the Estero El Salado Administration. And we thank Universidad de Guadalajara for its financial support of this project, and biologist Alfredo Frías-Castro for characterizing the vegetation.

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Speckled racer, *Drymobius margaritiferus*. Photograph by Daniel Cruz-Sáenz.



Mexican treefrog, *Smilisca baudinii*. Photograph by Daniel Cruz-Sáenz.

From City Girl to Field Biologist in 3 Months

by Stephanie Cappiello

Part 1: Terrapins

It was early May when I learned that I had only one week to prepare for my return to Sanibel Island, Florida, for what would be a physically and mentally challenging field biology internship. I had spent a week in March on Sanibel gathering data for a gopher tortoise research project at the invitation of a fellow CHS member whom I had met at the December holiday party. To say I was excited is an understatement. To say that I was not nervous would be a lie. I was born and raised in the city and never spent much time outdoors. In fact, I was scared of most bugs and would not swim due to an irrational fear of fish. As I packed my bags, I could not help but think, good thing Florida is filled with giant bugs and creepy saltwater fish.

On my first day of work at the Sanibel Captiva Conservation Foundation (www.sccf.org), my boss and fellow CHS member Chris Lechowicz, the director of habitat management, informed me that we were headed out to the mangroves to capture diamond-backed terrapins. We were taking part in a study to estimate the population size of the species in the area. As we arrived at the mangroves, I could not help but notice the overwhelming amount of spider webs. Back in Chicago, a lone spider in my room would send me screaming down the hall, demanding that my father kill it. When we arrived at the site, Chris told me to step into the mangroves and enter the water. As I approached the water, I noticed schools of fish swimming everywhere. *Great*, I thought, *I get to realize my two biggest fears all at once, bugs and fish*. The only thing that kept me from hopping on the next flight home, was the fact that I was about to have the experience of my life catching terrapins.

The first terrapin that came my way managed to evade my grasp by digging into the leaf litter. Much to Chris's dismay, I refused to stick my hands in the mud to retrieve the turtle. Therefore, the next few turtles snuck past me. The next day happened to be not only my second day in the mangroves, but also World Turtle Day. I was determined to catch a turtle. After a total of four hours in the water, I had caught three terrapins

and was elated!

Every time we caught a turtle, we took body measurements, drilled the shell (for marking purposes), pit-tagged them, took pictures and released them. I was so nervous; I did not want to drill in the wrong spot and hurt one of them. Chris showed me how to pit-tag them and cautioned me to be careful since the needle was very sharp. Sure enough, I stabbed myself in the hand. I guess all jobs come with their own hazards! I was excited to find that the process quickly became quite smooth and I was really good at it. When we arrived back at the office, I processed the terrapin data.

Having reviewed his research on population size, Chris noticed that there had never been hatchlings or young turtles at our study site; so he received funding for two satellite transmitters. We wanted to attach the satellite transmitters to gravid females in order to track their nesting behaviors. The following week was spent in the mangroves for hours each day trying to catch gravid females. The more times I went, the less nervous I became and the more fun I had. It actually became addicting to catch turtles, and I even found myself freely jumping in the water after them.

Once we had caught the gravid females, we had to attach the transmitters, which was a real learning experience. I realized at that moment that I was part of groundbreaking research, as no one else had ever put this type of transmitter on a terrapin. Once the females were released, I was in charge of monitoring the data and tracking their movements. After working with the terrapins, I developed a new interest in aquatic turtles and thankfully am no longer afraid of fish!

To be continued . . .



The author wading through the mangroves in search of diamond-backed terrapins. Photograph by Chris Lechowicz.



The author holding a gravid female diamondback that has been outfitted with a satellite transmitter. Photograph by Chris Lechowicz.

In fond remembrance of Ilene Sievert, who died December 16, 2012, this year we will reprint several of the essays that Ilene wrote for these pages between 1988 and 1993 under the rubric "Frog City." This one is from August 1992.

Frog City **by Ilene Sievert**

IX. Only Herpetology, or, What Frogs Do for Me

It surely will amaze you, as it did me, that some criticism has been made on the publication of these essays. The subject matter has not always been appropriate for a serious journal of herpetology; too general or even too far afield. Rest easy, I am not at all hurt or even annoyed by this well-meaning guidance by utter asses and vicious bastards out to get me. After months of sulking in my tent, with all gracious good will I limit these paragraphs to one subject only; topics directly concerned with the glorious science which has captured world-wide love and interest. That's herpetology! [Enter high-kicking chorus of frogs hired from Phil Smidt's] Herpetology: the portmanteau of Linnaeus into which are shoved the more disagreeable productions of Nature so as to clear the desk for something pleasant, botany perhaps. Actually herpetology appears to be the study of vertebrate icky things that no one else, besides herpetologists, cares much about when not in cartoon or folktale form. It sometimes occurs to me that if baby turtles weren't so darn cute herpetologists would be driven out with cursing and long sticks. "I tell you Brethren, these people feed fuzzy bunnies to big snakes!"

As for myself, I most often find incredulity and condescending amusement. "You were where? Looking for what?"

Oh Ilene, you're a stitch!"

Where was I—oh yes, herpetology; what fascinates and motivates its devotees? Several theories exist on why a certain minority of individuals have this particular interest. Perhaps these persons are sensitive, sensitive to the underfrog nature of the studied animals and wish to bless with love the otherwise unloved in the style of Mother Teresa. Or maybe they confront inward atavistic fears, driving out the racial memories by rationalizing the irrational and generally damping the bad vibes. Oh yes you do remember what "vibes" are. It has occurred to me that unpopular subjects attract fewer enthusiasts yielding less competition. Players of bassoon or harp have a less crowded field than students of violin or piano. Or elitism could move our herpetologist. Anyone (everyone!) can coo over a fuzzy bunny. Our herpetologist can be one of the very few to coo over gular flapping. Put simply, are fuzzy bunnies not good enough for you or, migosh, is it that you are not good enough for fuzzy bunnies?

A popular view on herpetologists is that they suffer from mild to moderate mental imbalance. One may cite such studies as "Small Women: Large Snakes" by Nevva More, and "Amphisbaenids in My Bedroom" by Mike Boobyhatch (also the author of "Accidental Underwater Photography"). And don't forget the most shocking revelations in "Secret Minutes of the Board" by Staci Quo.

My very dear reader, so precious because so rare, for you alone have I carefully and most methodically examined these and other theories, spoiling the good backs of many an envelope

and forever invalidating grocery coupons used as bookmarks. But after much consideration and untold hours of pleasant daydreaming I concluded that not all persons interested in herpetology are sappy, arrogant or in great need of personal counseling. There are those who contribute to the sum of human knowledge, an activity needing no apology. But what of us who will never play in any concert hall, perhaps not even to a few neighbors? My personal opinion is that an interest in herpetology can be an important contributor to mental health and intellectual strength, regardless of the scientific publications not made.

"Why should this be so?", the young fellows ask. Let Grandma tell you.

One affliction of the latter part of life is that the fresh sense of wonder and delight dims down. Gray shades of experience, grief and fatigue can mute the bright colors that nourished the growth of our senses when we were children. We darken like old bronze monuments and need a little rubbing to bring out some highlights; perhaps also some washing off of poultry poop. Think of that picture that's been hanging in your living room, ignored. Once you thought it so lovely a wad of money was enchanted right out of your pocket. What can you do to reopen your eyes? A good look at something new, different, will recreate the old for you and transform the tiresome familiar. Details in the new will call forth correspondences on the old and rise up on the blank surfaces, and caves and mountains pop in and out of the former flatlands.

When you started your interest in herpetology, what attracted you? Did the forms of the creatures make you think of structural or behavioral adaptation? Or did venom chemistry catch your attention, or variations of vertebrate evolution, skeletal changes, or feeding patterns? What about population dynamics of predators and prey or effects of human changes on populations? Perhaps like most children you just thought herptiles were really neat looking and went on from there thinking about running along with no arms and legs looking for prey, absorbing your drink through your skin, or swallowing your food whole without chewing. I'll bet you thought about swallowing your food whole, you little rascal.

I think other living creatures, not forgetting plants, have a kind of poetry for us which in the case of herptiles is also a form of theater in which we envision ourselves as them and then step outside to observe. Any scientific knowledge, not very different from confirmed gossip about our relatives and friends, enriches the experience and encourages further involvement. Incidentally, though I have envisioned myself as a large woody plant, never anything herbaceous let alone nonvascular, there are some folks who model themselves on fungus (particularly mold), or on

floating green algae of small, still bodies of water.

So, herpetology can be most anything you like, art or science, physics, chemistry, history, literature! or even music (braaaaaack). Why not bypass herpetology and go straight to these other disciplines? Beats me, except baby turtles are so darn cute. Besides, if you lift and restore a heap of trash you may find a snake or salamander but not a subatomic particle. A night by a pond with a flashlight is cheaper than Ravinia and no one talks through the music. An iguana may scratch your neck but it won't explode and burn off your eyebrows. A python swallowing a rat is less ugly than what's happening in Bosnia. Furthermore, fuzzy bunnies aggravate my allergies but turtle dander has never swollen my eyelids or triggered one sneeze.

Personally, things I can see, hold, and smell are more comprehensible than things I can't. Bacteria are too darn small and photons are out of the question. The probability of particle or wave* or the blood of St Januarius, it's all too mysterious. I agree that knowledge of these is basic to biological understanding (excepting the Saint, as a miracle is by definition an exception) but my confused thoughts are soon frustrated in attempts at independent conjecture on the basic topics of energy and matter. I'll be happy to take the latest received info at the popular level without argument, not the whole rodent at one time please. Give me a hitching post for my science and herpetology will do as well as any.

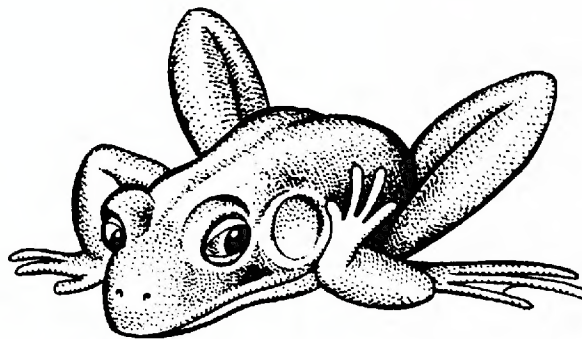
I told you I would stick strictly to herpetology.

* Hey kids, try this! Get three pairs of polarized sunglasses, clip-ons are the easiest, a flashlight, and a white screen to cast your flashlight beam upon. The screen can be a white wall or piece of paper. Shine your flashlight on the screen to make a round white spot of light. Then hold your first pair of sunglasses horizontally so the beam passes through a lens. Hold the second pair vertically in front of the first pair so that the beam passes through both pairs. What do you see? Now have someone take the third pair of sunglasses to hold between the other two pair. First hold it horizontally like the first pair, then vertically like the second. Then finally hold it at a diagonal angle to the other two pair. What do you see? Ask Dad to explain why.

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The Tympanum

The article by Dave Barker (CHS Bulletin, Volume 48, Number 8, August 2013) on the snake-killing garden netting was excellent and timely. I would like to point out another deadly product which incorporates the very same netting; straw erosion control blankets, the most common brand being Curlex. We used some of this several years ago to stop erosion on our land while waiting for the grass seed to germinate underneath it. These blankets are composed of a mat of straw held together on both sides by nylon netting and comes in 4' × 100' rolls. To our dismay, we started finding dead snakes,



including copperheads (*Agkistrodon contortrix laticinctus*), Eastern hognose snakes (*Heterodon platirhinos*) and Eastern yellow-bellied racers (*Coluber constrictor flaviventris*), entangled in the netting. I subsequently dumped several loads of sand on top of the blankets which fixed the problem.

As this material is commonly used in landscaping, sometimes on a huge scale, it must certainly cause the deaths of countless snakes and other small animals. **William B. Montgomery,** crotalus53@gmail.com

What You Missed at the August Meeting

John Archer

j-archer@sbcglobal.net

(all uncaptioned photos by Desiree Wong)

What do you like to do on vacation? I suspect that most reading this will have significantly different ideas of the ideal vacation itinerary than the average vacationer. I don't hear of too many acquaintances longing for a trip to Disney World or dreaming of an evening at a Parisian café. Not that both of those are poor choices. I've been fortunate to spend some time at Parisian cafés. I won't say my feelings toward my Disney visits (The kids loved them. Fortunately they're grown.) But my ideal vacation? Probably not going to be quite that civilized. Rustic living conditions in areas of the world that usually have fewer people than most vacation destinations seem to figure prominently in my desires. Yours too? Yeah, I thought so, and we know why: that's where the animals are. Particularly reptiles and amphibians. Many of us spend our weekends in terrain shunned by the majority of the population. Our ultimate vacation would most likely take that to extremes.

The Shedd Aquarium here in Chicago has the best displays of reptiles and amphibians in the city. That should shame our two zoos, but they still don't seem interested in featuring in-depth collections of herps. The Shedd also is one of the leading organizations in the conservation of Caribbean rock iguanas, an effort headed by Dr. Charles Knapp. Dr. Knapp runs periodic trips down to the Bahamas to study the lizards. He has been the recipient of multiple CHS grants, and has been the featured speaker at several of our meetings, most recently in 2010 (Bull. Chicago Herp. Soc. 45(3):47-49). He believes in the value of citizens cooperating in research, so his excursions aboard the Shedd's research vessel *Coral Reef II* include nonscientists who apply through the



Cindy Steinle at the podium introduces Desiree Wong.
Photograph by Barbara Nieri Hood.

aquarium.

I suspect that readers recognize the perils that many animals are facing. If you don't, you're not reading the *Bulletin* (or anything) enough. We are an organization dedicated to conserving all animals, especially reptiles and amphibians and toward that end your society supports conservation efforts with grants for academic studies and donations to organizations actively involved in conservation efforts. Many of you probably individually donate to the same causes. Because we care. We try to tread lightly and limit our impact on the world.

I happen to enjoy vacation slide shows. I enjoy them much more when I'm in charge of the speed of the slide show, but I rarely get bored when the speaker is enthusiastically relating their experiences. Maybe I'm just lucky enough to have interesting friends, because that doesn't seem to be the typical response to sitting through pictures of someone else's adventure.

Citizen science has been a recurring theme for CHS presenters in the past few years with multiple examples of ways that average citizens (and average herpers) can contribute to scientific inquiries.

You're wondering where this is going. Our August speaker's talk could have been titled, "What I Did on My Summer Vacation." Her idea of a great vacation had all the elements mentioned above with lots of pictures, enthusiasm, recruiting, and results.

Desiree Wong is a hobbyist, but she's contributed more than most to the herp world. An early trip to Grand Cayman sparked an interest in blue iguanas (*Cyclura lewisi*) and she became deeply involved with conservation by working with the International Reptile Conservation Foundation (IRCF). She's well known from all her appearances representing that organization at reptile trade shows and symposiums. She's been a frequent exhibitor at ReptileFest in that capacity. Desiree has taken a break from the IRCF, but she still is deeply concerned with conservation, particularly of iguanas. She isn't the type of person to sit around on a beach reading a novel during two weeks of vacation, so she cruised as a citizen assistant with Dr. Knapp to the islands of Andros in the Bahamas. Then visited Chicago to tell us about her trip.

The Bahamas lie just to the east of Florida. The island of Bimini lies about 60 miles east of Miami and Andros lies about 140 east. Andros is the largest of the Bahamian Islands and features the Andros Island iguanas (*Cyclura cychlura cychlura*), Chuck



Knapp's favorite. Desiree mentioned that she was prepared to argue for the blue iguanas, but became a convert when she saw the Andros iguanas. Her opening slide was a gorgeous headshot of one of these lizards. One of the largest and most colorful of the rock iguanas, the Andros Island iguana is unique in laying its eggs in termite mounds, a fact discovered by Dr. Knapp.

The photos came fast and furious as Desiree related her tale. Pictures of the Shedd's research vessel at dock and leaving the dock came on screen along with shots of its interiors, all of which looked pretty comfortable. "We even had a chef!" The cruise to Andros included a stop in Bimini to clear customs and we saw pictures, including one of a pay phone that looked operative, a rare sight indeed. The photos left Bimini and took us to Andros and we saw pelicans and fishermen and sharks swimming past. Large and colorful spiders filled our eyes along with a shot of a green plastic pumpkin on a porch. Desiree was gradually sinking us into a Bahamian state of mind.



We dived into the research with shots of lizards doing lizard stuff and the human participants capturing the lizards, taking blood, holding animals and getting stuck in the mud. Desiree said they were warned to avoid the mud but sometimes that wasn't heeded, usually at the cost of some struggling to remove oneself from the predicament. Flowering plants lent their beauty to her presentation, along with pictures of the ubiquitous poison-wood, which Desiree compared to poison oak. People measured animals and inserted pit tags. Sunset shots were gorgeous, birds abounded and curly-tailed lizards (*Leiocephalus* sp.) were everywhere. But lest we get too complacent, Desiree included



pictures of a hunters' camp with its accompanying debris and iguana skeletons. Fortunately Chuck Knapp's work has helped persuade the Bahamian government to make much of the iguanas' range a national park, but poaching continues.

The less-than-glamorous side of iguana research was illustrated with photos of tick removal from the lizards. A gory little picture of an unfortunate thumb was proof that not only can the iguanas bite, they can bite hard and painfully. And a bloody picture of Desiree's leg showed that she was not immune to the scraps and tears one may encounter on an island of sharp rocks and thorny shrubs.

But she didn't linger on the down side of her experiences. We saw terrific underwater shots taken of dazzling fish in crystal clear water and a cute iguana that may have been the smallest the researchers had ever captured. As expected, more than one person had their picture taken with the diminutive creature.



Desiree showed close to 400 slides and with her continuing dialogue allowed us a glimpse of what it's like to be a citizen scientist cooperating with Shedd researchers in the Bahamas. She stressed that she was an active and valuable participant contributing to real science. But she also showed us what fun the ten days were, flashing pictures of friendly cohorts and crew and talking about engaging interactions with the locals. She spent her summer vacation doing something fun, interesting and important. She encourages everyone who has an opportunity to replicate her experiences with citizen science. I liked her vacation photos. Hiking the beach looking for lizards definitely beats lying around getting sunburned. And it blows away Disney World.



Herpetology 2013

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

TUATARA NESTING BEHAVIOR

J. M. Refsnider et al. [2013, *Herpetologica* 69(3):282-290] note that the costs of nesting to female animals can be substantial, and may dictate patterns of nest-site choice. In particular, females that travel farther to nest likely incur greater energetic costs and may be at greater risk of losing territories to conspecific competitors. The authors examined patterns of nesting migrations for a population of tuatara on Stephens Island, New Zealand, over 5 yr. Only about 7% of female tuatara observed nesting in a rookery also lived in that rookery. Of 140 females for which both residence and nesting locations were known, 42% traveled to a nesting rookery from their residential area. The average distance traveled by these females was 84 m, and travel was toward the rookery closest to a female's residence area. The results demonstrate that female tuatara on Stephens Island minimize the distance traveled on nesting migrations. The authors suggest that the patterns in nesting travel we observed in this population may be due to natal philopatry of nesting females, or to females minimizing the costs of nesting-related travel.

URBAN CASE STUDY OF TEXAS HORNED LIZARDS

A. J. Wolf et al. [2013, *Herpetologica* 69(3):265-281] note that disturbance caused by habitat restoration or urbanization can threaten populations of sensitive wildlife species. They examined the effects of habitat disturbance on the ecology of an urban population of Texas horned lizards (*Phrynosoma cornutum*), a species of concern in several states as a result of range-wide declines. The study quantified changes in spatial distribution, survival rates, and population size and density over 9 yr (2003–2011) for a *P. cornutum* population on an urban reserve. The project was divided into three, 3-yr stages based on level of habitat disturbance. Spatial analyses did not support the hypothesis that disturbance associated with restoration activities affected the spatial ecology of *P. cornutum* on the study site. However, these results were not conclusive due to the logistical constraints of working on a single site with an uncommon species. Survival ($n = 147$ lizards) was affected by season (inactive-season survival was higher), stage (declining survival in later stages with more disturbance), an interaction of season and stage, and disturbance (covariate of proportion of an individual's home range in disturbed areas for a given year). Major causes of mortality included predation and anthropogenic activity. Population size was estimated at 33 ± 5 individuals (excluding hatchlings) with a corresponding density of 2.68 lizards/ha in 2011, a 38% decline since 2005. This decline was likely a consequence of two factors: the 2008 translocation of 17 adult lizards from an area adjacent to the study site impacted by development and a decrease in the annual survival rate of adults over time. This case study addressed recent calls to examine specific mechanisms by which habitat loss and degradation affect herpetofauna and revealed classic responses of an isolated population to stochastic events and anthropogenic activities.

TURTLES IN BUSHMEAT MARKETS

L. Luiselli et al. [2013, *Herpetozoa* 26(1/2):57-64] note that the moist forests in the Niger Delta (southern Nigeria) are part of the West African forests biodiversity hotspot; they house a rich chelonian diversity, now threatened by deforestation, oil spills, and human consumption. Field surveys in nine bushmeat markets in the years 1996–2002 are compared with surveys in the same markets in 2011–2012, in order to perceive potential differences and similarities in the trends of local people's exploitation of terrestrial and freshwater chelonians. The number of traded chelonians significantly decreased, with two species (*Trionyx triunguis* and *Cyclanorbis elegans*) having fully disappeared from the market and two others (*Kinixys homeana* and *Kinixys erosa*) having almost disappeared. On the other hand, several chelonian carcasses were observed in 2012 in the market of Lomé, Togo. Interviews with local hunters revealed that demand for turtle meat did not change considerably in the last ten years, compared to other wildlife meat, and that tortoises are more difficult to encounter in the field than was the case in the previous decade. These findings suggest that the collapse of chelonian supply in bushmeat markets may be due to an overall, strong decline in abundance of these animals, and in particular, of tortoises of the genus *Kinixys*. Direct comparison of current trends with 10-year-old datasets urge immediate demographic research to evaluate the current level of population reduction for these wild tortoise populations in this part of Africa.

ALLIGATOR SNAPPING TURTLE CONSERVATION

T. C. Lescher et al. [2013, *Chelonian Conservation and Biology* 12(1):163-168] in 2009 resampled, at the same trapping locations, six sites that had been sampled for alligator snapping turtles (*Macrochelys temminckii*) in 1993–1994. Significantly fewer alligator snapping turtles were captured per trap night at all six sites, and the population structure of the alligator snapping turtles had a significantly different distribution in 2009 compared with 1993–1994. In order to continue monitoring their long-term trends in relative abundance and population structure, future sampling of alligator snapping turtles at these six sites is recommended.

HABITAT FOR YANGTZE GIANT SOFTSHELLS

Wang Jian et al. [2013, *Chelonian Conservation and Biology* 12(1):177-184] carried out exhaustive interview surveys on the upper Red River (Honghe) and nearby river systems of southwest China to characterize the distribution of *Rafetus swinhoiei*, one of the world's rarest turtles. Results show that it once ranged strictly in the Red River system, apart from the lower Yangtze, and still existed in recent years, although on the brink of extinction due to overharvesting and habitat degradation. Further conservation efforts require monitoring of hunting and trade of turtles in this region, public education, delaying the building of dams, setting up new protected areas, and international cooperation.

BLUE-SPOTTED SALAMANDER HABITAT SELECTION

A. Belasen et al. [2013, *Copeia* 2013(2):254-261] note that elucidating the mechanisms that influence spatial distribution patterns is vital to understanding how populations persist. They examined distribution in one of the most common salamanders in southeastern Michigan, the blue-spotted salamander (*Ambystoma laterale-jeffersonianum* unisexual complex). Three major tree species dominate the sub-canopy in the study site and form monospecific patches, which may have an effect on the distribution of terrestrial phases of local amphibian species. To examine this, the authors tested whether adult salamanders are significantly associated negatively or positively with patches of particular tree species. They then examined two potential causal factors: habitat quality, using leaf litter macroinvertebrate biomass as a proxy, and behavioral site choice in the blue-spotted salamander. They found that this species is positively associated with patches of red maple and negatively associated with patches of black cherry. They also found that, when presented with a choice, salamanders choose red maple leaf litter over black cherry leaf litter. In the absence of differences in physical leaf litter characteristics between patches of red maple and black cherry, they suggest that the salamanders may be utilizing chemical cues to select habitat. These findings imply that salamander populations may be affected not only by habitat loss, but also by changes in forest composition. These results provide evidence for a more complex model than the traditional amphibian metapopulation concept, where even fully forested habitat may form a matrix of optimal and suboptimal, or even intolerable, patches.

GIANT TORTOISES OF THE SEYCHELLES

J. Gerlach et al. [2013, *Chelonian Conservation and Biology* 12(1):70-83] note that the giant tortoises (*Aldabrachelys* or *Dipsochelys*) of the Indian Ocean islands have been in decline since the first human settlement of the islands. They retain only a single natural population on Aldabra Atoll (and possibly Ile aux Cerfs, where tortoises are descendants of a mixture of indigenous and imported animals). Several additional wild populations are known, resulting from reintroductions to the historic range and introductions outside of that range. The historical distribution of tortoises in Seychelles is summarized, with reliable tortoise records from only 4 coralline islands and 23 granitic islands and the status of all the wild populations reviewed. This includes the first census of the Frégate Island population. In the granitic islands, only 9 islands support tortoises today and the wild population of these islands is estimated at 500–550 adults. In the coralline islands, tortoises are now present on 11 islands, with a total population of over 100,000 (almost all on Aldabra). Climate change impacts over the next 100 yrs are expected to be severe in low-lying areas of the Seychelles Islands attributable to sea-level rise and storm impacts on coastal erosion. These are projected to result in the loss of many populations and significant declines in the Aldabra population. As a result, the species should be regarded as Vulnerable by IUCN Red List Threat Criteria. Reintroduction to more of the high granitic islands could offset some of these projected declines, and it is recommended that such reintroductions be included in future conservation programs to restore ecosystem function.

ANCIENT PHENOTYPES REVEALED

D. Fielder [2013, *Chelonian Conservation and Biology* 12(1): 101-111] note that understanding of evolutionary history and speciation events to inform phylogeography of extant species can be gleaned from the fossil record. However, the fossil record for Australian freshwater turtles contains many gaps and interpretation of the fossils that are known is difficult because of poor knowledge of the morphology of extant forms. There are no fossils currently assigned to short-necked turtles in the genus *Myuchelys*. In an alternative approach, morphological characters of the extant species *Myuchelys bellii*, *M. georgesi*, *M. latisternum*, and *M. purvisi* were mapped against their current molecular phylogeny. The cryptic species pair, *M. georgesi* and *M. purvisi*, are morphologically very similar, but distant phylogenetically, and their common ancestor includes *M. latisternum* and *M. bellii* in its descendants. This suggests that current shared morphology of *M. georgesi* and *M. purvisi* represents a suite of symplesiomorphies (shared primitive characters). These characters include presence of a cervical scute, lack of prominent neck tubercles, a relatively small head size, minor or no serrations of marginal scutes, an oval carapace, and a smooth head shield extending down the parietal arch toward the tympanum. This commonality of characters of this cryptic species pair represents a rare insight to the ancestral phenotype of the *Myuchelys*. The loss of the cervical scute and presence of enlarged neck tubercles, a large robust head and furrowed head shield, deep serrated shell margins, and compressed shell profile in *M. bellii* and *M. latisternum* are synapomorphies (shared derived characters). There is no morphological support for the distinction at the level of species or subspecies between discrete populations of *M. bellii*. A dichotomous key to species is provided.

MANAGEMENT OF AMAZON RIVER TURTLES

P. S. Miorando et al. [2013, *Chelonian Conservation and Biology* 12(1):143-150] note that *Podocnemis sextuberculata* is cited as “vulnerable” on the International Union for Conservation of Nature Red List due to a decline in its population as a result of the intensive exploitation pressure throughout its range. Understanding the effects of environmental characteristics and human activities on turtle populations is essential to improve current conservation programs. The authors analyzed the abundance of *Podocnemis sextuberculata* in the lower Amazon, where a management experiment is under way, by comparing neighboring areas with and without community-based management (CBM) initiatives. In addition, they analyzed the influence of environmental variables on the species’ abundance. Abundance was measured by captures per unit effort expressed in number of individuals (CPUE_N) and biomass (CPUE_B). The effects of CBM and environmental variables were tested by General Linear Model analysis. A total of 354 individuals were captured, 321 in the areas under CBM and 33 in areas without CBM. CPUE_N and CPUE_B were strongly correlated, and their values were about 10-fold higher in the areas carrying out CBM initiatives. The variable that best explained variation in CPUE_N and CPUE_B was CBM. Distance between the sampling point and the nearest nesting beach and river level also influenced capture rates. Results clearly show that local fishing restrictions can have a positive influence on turtle populations.

Unofficial Minutes of the CHS Board Meeting, August 16, 2013

The meeting was called to order at 7:36 P.M. at the Schaumburg Public Library. Board members Josh Baity, Jim Foster, Aaron La Forge and Cindy Rampacek were absent.

Officers' Reports

Recording Secretary: The minutes of the July 19 board meeting were read, discussed and accepted.

Treasurer: The July financial report was discussed and accepted.

Membership Secretary: Numbers are holding at just under 500. The list of expiring memberships was read.

Sergeant-at-arms: July meeting attendance was 64.

Committee Reports

Shows:

- Notebaert Nature Museum, first full weekend of each month.
- Red Oak Nature Center, Bug Fest, August 24.
- Notebaert Nature Museum Trivia Night, 6–9 P.M., August 27.
- Unity Fest, Marquette Park, 10 A.M.–3 P.M., September 7.
- Meet the Creek, Kiwanis Park, Brookfield, 12:30–4 P.M., September 14.
- Blessing of the Animals, Pullman, Noon, October 6.
- NARBC, Tinley Park, October 12–13.

Old Business

Herps of Illinois: Jason will forward guidelines written by Erica Mede for the board to look through before the next meeting.

Junior Herpers: Had a great meeting in August! Barbara Nieri Hood has been working on the website. Dan Bavirsha will speak in September.

Nominating Committee: Jason appointed Mike Scott as chair of the committee. Other members are Linda Malawy, Mike Dloogatch, Rich Lamzsus and Dave Hoff

New Business

Awards Committee: The 2013 Awards Committee needs to begin their considerations.

Magazine Sales: Herp Nation is offering their magazines to societies at a reduced rate to be sold as a fundraiser at meetings. We will not take part at this time.

Canadian Rock Python News story: A discussion took place regarding whether the Society should release a statement or opinion about this situation. A statement released by USArk and others was discussed, and will be placed on our website.

Treasurer: Should we have tighter control over our treasury in light of problems experienced by other societies? Andy will research our options.

Round Table

Bob Bavirsha still has snapping turtles hatching from eggs he rescued which are being incubated at a nature center and then released.

Nancy Kloskowski lost her Amazon parrot recently after having had it as a pet for 43 years.

Jason Hood had Amazon tree boas born, some of which had trouble. He successfully used CPR to resuscitate one.

The meeting was adjourned at 9:40 P.M.

Respectfully submitted by Jenny Vollman



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For sale: **highest quality frozen rodents**. I have been raising rodents for over 30 years and can supply you with the highest quality mice available in the U.S. These are always exceptionally clean and healthy with no urine odor or mixed in bedding. I feed these to my own reptile collection exclusively and so make sure they are the best available. All rodents are produced from my personal breeding colony and are fed exceptional high protein, low fat rodent diets; no dog food is ever used. Additionally, all mice are flash frozen and are separate in the bag, not frozen together. I also have ultra low shipping prices to most areas of the U.S. and can beat others shipping prices considerably. I specialize in the smaller mice sizes and currently have the following four sizes available: Small pink mice (1 day old—1 gm) , \$25 /100; Large pink mice (4 to 5 days old—2 to 3 gm), \$27.50 /100; Small fuzzy mice (7 to 8 days old—5 to 6 gm) , \$30/100; Large fuzzy mice /hoppers (10 to 12 days old—8 to 10 gm), \$35/100 Contact Kelly Haller at 785-234-3358 or by e-mail at kelhal56@hotmail.com

For sale: High quality, all locally captive-hatched tortoises, all bred and hatched here in the upper midwest. Baby leopards, Sri Lankan stars, and pancakes usually available, and are all well-started and feeding great! Leopards are \$125 ea., Sri Lankans (2012 hatched) \$475 ea. And Pancakes are \$195 ea. Leopards for out of state sale/shipping require a veterinary health certificate (inquire for cost). E-mail at KKranz1@wi.rr.com or call Jim or Kirsten at 262 654 6303.

Herp tours: **Costa Rica herping adventures**. Join a small group of fellow herpers for 7 herp-filled days. We find all types of herps, mammals, birds, and insects, but our target is snakes. We average 52 per trip, and this is our 10th year doing it. If you would like to enjoy finding herps in the wild and sleep in a bed at night with air-conditioning, hot water and only unpack your suitcase once, instead of daily, then this is the place to do it. Go to our web-site <http://hiss-n-things.com> and read the highlights of our trips. Read the statistics of each trip and visit the link showing photos of the 40 different species we have found along the way. E-mail at jim.kavney@gmail.com or call Jim Kavney, 305-664-2881.

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UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, September 25, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Justin Julander**, research associate professor in the Institute for Antiviral Research at Utah State University, will speak on “Natural History of Australian Pythons and Implications for Captive Care.” Justin is also co-owner of Australian Addiction Reptiles and has been keeping and breeding Australian reptiles for the past 16 years. The pythons of Australia are a diverse group of ambush predators that are adapted to life in a variety of habitats. While the many species share several key features, various taxa are also specifically adapted to fill certain niches. Such behavior and adaptive traits in the wild are quite fascinating and recent studies have provided important insights into the natural history of these snakes. There are also implications on captive care that will help keepers improve conditions for their maintenance in an artificial environment.

At the October 30 meeting, our speaker will be **Jennifer Stabile**, amphibian conservation coordinator and senior keeper at the Albuquerque BioPark Zoo.

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago’s newest museum—the **Peggy Notebaert Nature Museum**. This beautiful building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby. Free parking is available in the walled-in area to the south of the loading dock ramp.

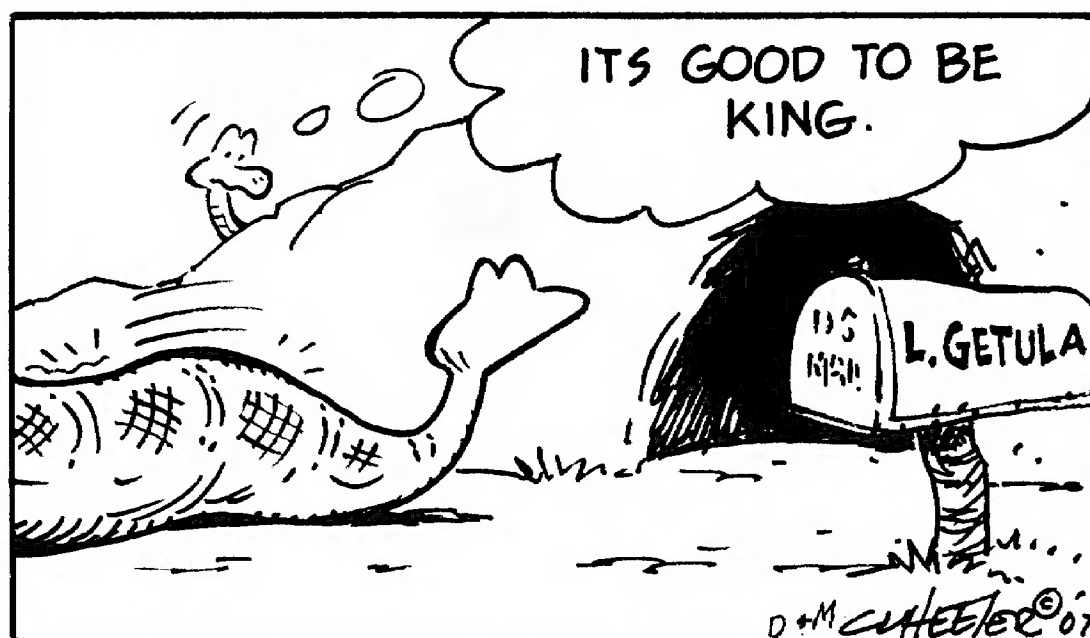
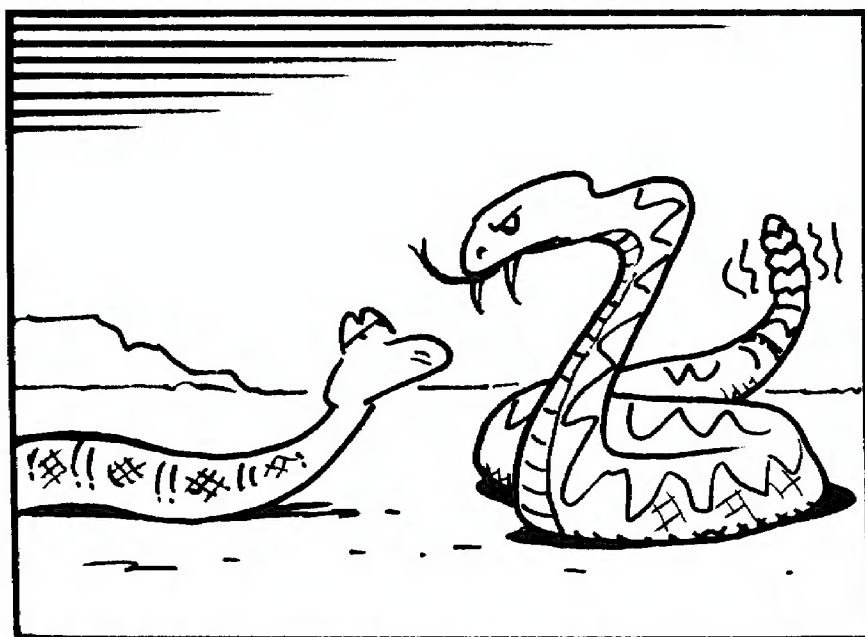
Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the next board meeting, to be held at 7:30 P.M., October 18, in the adult meeting room on the second floor of the Schaumburg Township District Library, 130 S. Roselle Road, Schaumburg..

The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info visit the group’s Facebook page.

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